

What is claimed is:

1. A method for removing sulfur compounds contained in a hydrocarbon-containing gas, wherein in feeding a hydrocarbon-containing gas to a desulfurizing bed to remove sulfur compounds contained in the above gas, the desulfurizing bed described above is constituted from a desulfurizing agent A comprising zeolite and a desulfurizing agent B comprising at least one selected from a metal element, a metal oxide and a metal component-carried oxide.
2. The method for removing sulfur compounds contained in a hydrocarbon-containing gas as described in claim 1, wherein the desulfurizing agent A has a higher desulfurizing performance to sulfides and disulfides than that of the desulfurizing agent B, and the desulfurizing agent B has a higher desulfurizing performance to carbonyl sulfide than that of the desulfurizing agent A.
3. The method for removing sulfur compounds contained in a hydrocarbon-containing gas as described in claim 1 or 2, wherein a volume ratio of the desulfurizing agent A to the desulfurizing agent B in the desulfurizing bed is 0.1 : 0.9 to 0.9 : 0.1.

4. The method for removing sulfur compounds contained in a hydrocarbon-containing gas as described in any of claims 1 to 3, wherein zeolite in the desulfurizing agent A has a beta (BEA) and/or faujasite (FAU) structure.

5. The method for removing sulfur compounds contained in a hydrocarbon-containing gas as described in any of claims 1 to 4, wherein the desulfurizing agent A is a desulfurizing agent comprising, in addition to zeolite, at least one metal component selected from Ag, Cu, Ni, Zn, Mn, Fe, Co, alkaline metals, alkaline earth metals and rare earth metals.

6. The method for removing sulfur compounds contained in a hydrocarbon-containing gas as described in any of claims 1 to 5, wherein the desulfurizing agent B is a desulfurizing agent comprising at least one metal component selected from Ag, Cu, Ni, Zn, Mn, Fe, Co, Al, Si, alkaline metals, alkaline earth metals and rare earth metals.

7. The method for removing sulfur compounds

contained in a hydrocarbon-containing gas as described in any of claims 1 to 6, wherein a temperature of the desulfurizing bed is -20 to 100°C.

8. A hydrocarbon-containing gas for a fuel cell containing 0.1 weight ppm or less of carbonyl sulfide.

9. The hydrocarbon-containing gas for a fuel cell as described in claim 8, wherein it is at least one selected from natural gas, city gas, LPG, a naphtha fraction and dimethyl ether.

10. A method for removing sulfur compounds contained in a hydrocarbon-containing gas, wherein a desulfurizing agent comprising at least zeolite is used to remove sulfur compounds contained in the hydrocarbon-containing gas for a fuel cell as described in claim 8 or 9.

11. A production process of hydrogen for a fuel cell, wherein sulfur compounds contained in a hydrocarbon-containing gas are removed by the method as described in any of claims 1 to 7 and 10, and then the desulfurization-treated hydrocarbon-containing gas is brought into contact with a partial oxidation

reforming catalyst, an autothermal reforming catalyst or a steam reforming catalyst.

12. The production process of hydrogen for a fuel cell as described in claim 11, wherein the partial oxidation reforming catalyst, the autothermal reforming catalyst or the steam reforming catalyst is a ruthenium base or nickel base catalyst.

13. A production process of hydrogen for a fuel cell, characterized by using the hydrocarbon-containing gas as described in claim 8 or 9 as a raw material.

14. A production process of hydrogen for a fuel cell, wherein sulfur compounds contained in the hydrocarbon-containing gas as described in claim 8 or 9 are removed, and then the desulfurization-treated hydrocarbon-containing gas is brought into contact with a partial oxidation reforming catalyst, an autothermal reforming catalyst or a steam reforming catalyst.

15. The production process of hydrogen for a fuel cell as described in claim 14, wherein the partial

oxidation reforming catalyst, the autothermal
reforming catalyst or the steam reforming catalyst is
a ruthenium base or nickel base catalyst.